# KANSAS PUBLIC WATER SUPPLY CAPACITY DEVELOPMENT PROGRAM

# REPORT TO THE GOVERNOR

September 17, 2020

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# INTRODUCTION

On August 6, 1996, President Bill Clinton signed PL 104-182, more commonly known as the Safe Drinking Water Act (SDWA) Amendments of 1996. Section 1420 of the SDWA required states to prepare two strategies to assist public water suppliers in achieving technical, financial and managerial capacity. One strategy was prepared for new public water supply system permitting. The second was prepared to help existing public water supply systems. The Kansas Department of Health and Environment (KDHE) is the primacy agency responsible for preparation and implementation of the Kansas Capacity Development strategies.

The New Systems Capacity Development Strategy was submitted to the U. S. Environmental Protection Agency (EPA) and subsequently approved in September 1999. The New Systems Strategy ensures that KDHE will not issue a permit to a new system until it has demonstrated the technical, financial and managerial (TFM) capacity to comply with drinking water regulations for the protection of the public health.

The Kansas Capacity Development Strategy for Existing Systems was submitted to the EPA in August 2000 and was approved in September 2000. The SDWA requires the head of the state primacy agency to submit to the Governor 2 years after adoption of the strategy and every 3 years thereafter, a report on implementation and efficacy of the state strategy. This report is submitted to the Governor to comply with the 3-year reporting requirement. Failure to prepare a strategy or submit the required reports may result in a 20% reduction in the capitalization grant from EPA for the drinking water revolving loan fund.

# WATER SYSTEM CAPACITY

Water system capacity is the ability to plan for, achieve, and maintain compliance with applicable drinking water standards. Capacity consists of three elements: Technical, Financial, and Managerial (TFM). Technical Capacity or capability is the physical and operational ability of a water system to meet SDWA requirements, including the adequacy of physical infrastructure, technical knowledge and capability of personnel, and adequate source water. Financial Capacity or capability is the ability of a water system to acquire and manage sufficient financial resources to allow the system to achieve and maintain compliance with SDWA requirements. Managerial Capacity or capability is the ability of a water system to conduct its affairs in a manner enabling the system to achieve and maintain compliance with SDWA requirements, including institutional and administrative capabilities. Properly managed systems have governing boards or authorities that are actively involved in oversight of system operations, while at the same time avoiding micromanagement.

Capacity development is the *process* of water systems acquiring and maintaining adequate technical, financial and managerial capabilities to ensure that systems consistently achieve the public health protection objectives of the 1996 Safe Drinking Water Act and to address both immediate and long-term challenges.

## CAPACITY ASSURANCE – NEW PUBLIC WATER SUPPLY SYSTEMS

### New System Permitting Overview

Under the 1996 amendments to the SDWA, states are required to insure that new community and new non-transient, non-community (NTNC) public water supply systems have the technical, financial and managerial capability to meet current and future SDWA requirements. KDHE's New System Permit Application consists of two parts. Part 1 is the engineering and design component, which is reviewed and approved by the Engineering and Permitting Unit. Part 2 of the permit application is the technical, financial and managerial capacity assurance component. Upon approval of Part 1 and the budget section of Part 2, a conditional permit or a letter of approval

is issued authorizing construction of the public water supply system. Before the system begins operation, the remaining elements in Part 2 of the application must be completed and approved. A final inspection must also be conducted and approval granted by KDHE to initiate operations.

**New System Implementation and Program Efficacy**

The Capacity Assurance Strategy for new systems includes a review and evaluation component KDHE uses to determine if the application and permitting process is effective. KDHE employs the EPA's Enforcement Response Policy (ERP) and Enforcement Tracking Tool (ETT) to analyze the success of the New System Capacity Assurance Program. According to the ERP, any system with a score of greater than 10 points using the ETT is considered to be in significant non-compliance. Any new system with greater than 10 points on EPAs quarterly ETT report receives a special review to ascertain why the non-compliance is occurring. KDHE evaluates whether the system's non-compliance is because of any short-coming in the new system permitting process or whether the non-compliance is due to other reasons, such as not following a proposed budget or providing proper training for the system's certified operator. During the period of October 1, 2017 through September 30, 2020, 3 new systems were permitted and none of the 3 systems received a score of greater than 10 on EPAs ETT.

## CAPACITY DEVELOPMENT STRATEGY FOR EXISTING PUBLIC WATER SUPPLY SYSTEMS

**Existing System Strategy Overview**

In March 1999, KDHE convened the Kansas Capacity Development Workgroup to assist in the preparation of the *Report of Findings* for the Kansas Capacity Development Strategy. Thirty drinking water stakeholders from across the State were invited to participate in the Workgroup. The Workgroup met 8 times during 1999 and 2000 and developed 15 recommendations for the Department to consider in the State Strategy.

All 15 recommendations have been implemented or amended. The changes are documented in Amendments 1 and 2 of the Capacity Development Strategy for Existing Water Supply Systems. The Report of Findings, the Capacity Development Strategy for Existing Public Water Supply Systems and the amendments are available for review on the Capacity Development Webpage: http://www.kdheks.gov/pws/capdev/capdev.html. Detailed information related to Program implementation is available in the annual program reports, also located on the Capacity Development Program webpage.

The Kansas Capacity Development Program is considered a national leader in developing and implementing innovative tools and programs to help water systems achieve and maintain TFM capacity. Several states have used the Kansas Capacity Development Survey as a model to develop similar surveys for use in evaluation of their state programs. In addition, A.M. Kan Work, an asset management tool, has been used by many states as well as in South Africa to help water systems develop and implement asset management plans for their utilities. Program managers have routinely been asked to provide presentations at national meetings and workshops.

**Existing System Strategy Review and Modification**

Periodic review and modification of the Strategy for Existing Systems is vital in keeping KDHE's Capacity Development Program current and relevant to the needs of Kansas public water supply systems. KDHE periodically convenes the State Capacity Development Workgroup to provide updates on Strategy implementation.

These meetings provide an opportunity for the stakeholders to review KDHE's implementation activities and offer advice on changes that may be needed. The Strategy has been amended twice since the initial EPA approval in 2000. Amendment 1 adopted in 2007, primarily clarified language to insure that implementation activities were consistent with the Strategy as applied to agency responsibilities. The most recent change was adopted in Amendment 2 during State Fiscal Year 2014 and added two new programs – the Area Wide Optimization Program (AWOP) and the Drinking Water Protection Program (DWPP).

**Efficacy of Existing System Strategy**

The Capacity Development Workgroup recommended that KDHE use a water system survey to measure improvements in water system capacity. Prior to the 2002 Report to the Governor, KDHE developed and completed the first Capacity Development Survey. The Capacity Development Survey is conducted every 3 years in conjunction with the Report to the Governor.

The 2002, 2005 and 2008 surveys consisted of hardcopy forms mailed to each water system and then entered by hand into a KDHE database. An electronic survey was under development during 2011, therefore a survey of water systems was not conducted for the 2011 Report to the Governor. In February 2014, KDHE launched the Public Water Supply Data Collector (PWSDC), a web-based survey tool used to conduct the Capacity Development Survey. Due to the change in survey format and data collection procedures, data from the 2014 survey reestablishes a baseline that will be used to measure improvements or identify weaknesses in water system capacity. The survey is also used to identify training and/or technical assistance needs to help systems achieve and maintain TFM capacity.

Beginning in June 2020, KDHE requested the 870 community water systems in Kansas to log on to the KDHE website and complete the 2020 Capacity Development Survey. As of August 14, 600 water systems have responded to the survey request. This represents approximately 69% of the community water systems in Kansas. For purposes of this report, KDHE evaluated 568 of the 600 respondents.

Each water system is assigned a score based upon its survey response. This score is used to determine placement in High, Medium or Low priority category. Placement in the High category indicates the system has insufficient capabilities in all three areas (TFM) of capacity development or is extremely deficient in one area. These are also the systems that often have drinking water compliance challenges. Water systems in the Medium category usually comply with regulations and may have only a few TFM related deficiencies. The Low priority category includes the water systems that demonstrate sufficient TFM capabilities and rarely experience compliance problems. The ultimate goal is to have the fewest number of systems in the high priority category with the majority of water systems in the low priority category.

Table 1 summarizes the results of the 2020 Survey and compares those results with the 2017 and 2014 surveys. The percentage of High Priority systems has decreased in all 3 population groups. Systems with a population of 3,301 or more have seen a shift of systems from Medium to Low Priority.

***Table 1: TFM Survey Comparisons from 2020, 2017 and 2014 using the KDHE Public Water Supply Data Collector.***

| | **2020 TFM Survey** | | **2017 TFM Survey** | | **2014 TFM Survey** | |
|---|---|---|---|---|---|---|
| Surveys Received | 600 | | 529 | | 520 | |
| Surveys Analyzed | 568 | | 476 | | 448 | |
| Percent Analyzed | 95% | | 90% | | 86% | |
| **Population 500 or Less** | **Total No. of Systems: 261** | | **Total No. of Systems: 229** | | **Total No. of Systems: 221** | |
| High Priority | 12% | 31 | 13% | 29 | 15% | 34 |
| Medium Priority | 59% | 155 | 59% | 134 | 62% | 137 |
| Low Priority | 29% | 75 | 29% | 66 | 23% | 50 |
| **Population 501 to 3,300** | **Total No. of Systems: 229** | | **Total No. of Systems: 214** | | **Total No. of Systems: 218** | |
| High Priority | 3% | 6 | 3% | 6 | 10% | 22 |
| Medium Priority | 45% | 103 | 42% | 90 | 54% | 117 |
| Low Priority | 52% | 120 | 55% | 118 | 36% | 79 |
| **Population 3,301 or More** | **Total No. of Systems: 78** | | **Total No. of Systems: 71** | | **Total No. of Systems: 75** | |
| High Priority | 3% | 2 | 6% | 4 | 11% | 8 |
| Medium Priority | 42% | 33 | 38% | 27 | 57% | 43 |
| Low Priority | 55% | 43 | 56% | 40 | 32% | 24 |

***Table 2: 2020 TFM Capacity Development Survey Summary.***

| | | |
|---|---|---|
| Total Number of Surveys Evaluated | | 568 |
| Highest Score (1 system) | | 71 |
| Lowest Score (3 systems) | | 2 |
| Average Score | | 23 |
| Median Score | | 22 |
| **Priority Ranking Summary** | | |
| **Priority Category** | **Points** | **Number of Systems** |
| High | 40 or More Points | 39 (7%) |
| Medium | 20 to 39 Points | 291 (51%) |
| Low | 0 to 19 Points | 238 (42%) |

The 2014 survey scores will also be used to reestablish a baseline data set for each water system. Future survey data will be measured against this baseline to identify improvements and/or deficiencies in individual water system capacity. KDHE will also use the survey scores in conjunction with compliance data, sanitary survey information, and KWO drought vulnerable data to prioritize the systems for capacity development assistance.

Studies conducted by EPA indicate that small drinking water systems face greater difficulties in achieving and maintaining TFM capacity and therefore may experience higher non-compliance rates with drinking water regulations. In order to determine if small systems in Kansas also face more challenges in achieving and maintaining TFM capacity, KDHE analyzes the TFM survey data by population. Figures 1 through 4 illustrate the priority ranking by population.

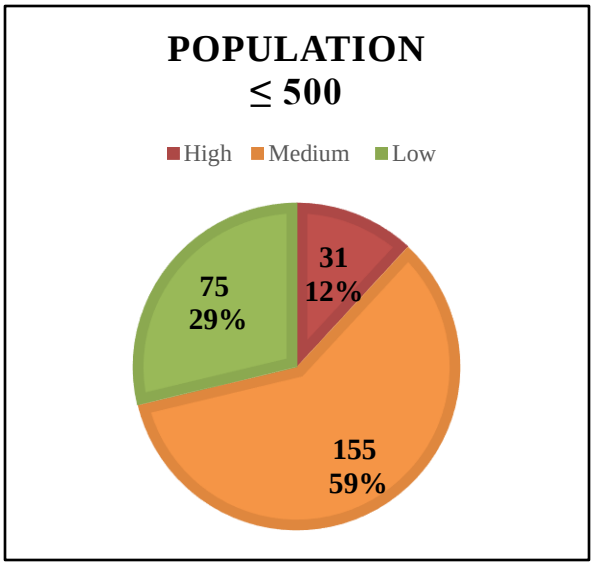


***Figure 1: Priority ranking by population: ≤ 500.***

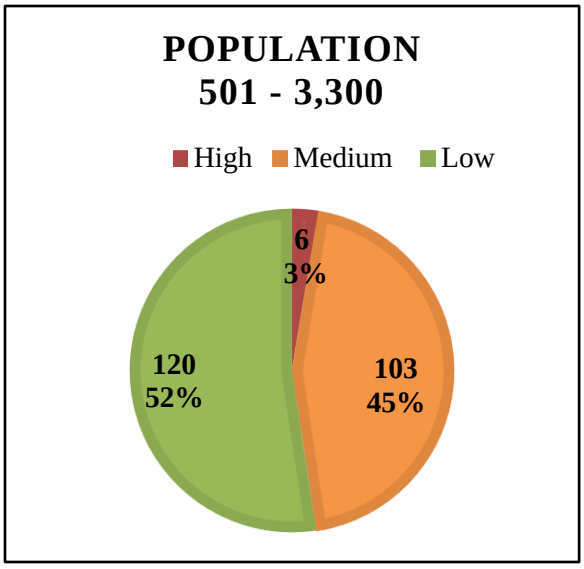


***Figure 2: Priority ranking by population: 501 – 3000.***

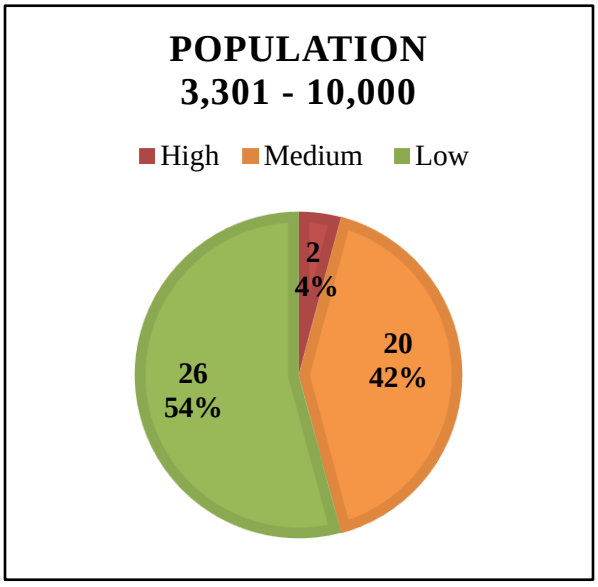


***Figure 3: Priority ranking by population: 3,301 – 10,000.***

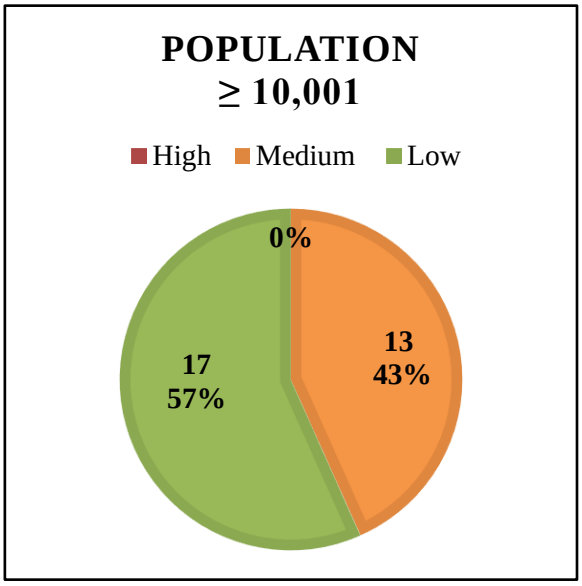


***Figure 4: Priority ranking by population: ≤ 10,000.***

Analysis of the data in Figures 1 through 4 is consistent with EPA conclusions that small systems experience greater difficulties in achieving and maintaining TFM capacity. As illustrated in Figure 1, the highest percentage of High Priority systems occurs in water systems serving a population of 500 or less. Factors that may impact a small system's ability to achieve and maintain capacity include: limited financial resources due to small customer base, lack of fulltime personnel to manage and operate the system and low to moderate income customer base. The Capacity Development Program places special emphasis on assisting small systems through board/council education, small system operator training, on-site technical assistance, rate-setting and financial planning

assistance, and asset management training and technical assistance. Planning grants are also available for water systems interested in regional planning, and for small systems with Maximum Contaminant Level (MCL) violations.

KDHE also reviews the survey data to identify training and technical assistance needs for water systems based on size. For example, KDHE uses the survey data to determine the type of assistance needed for a given water system size. Figures 5 through 8 compare managerial and financial capacity to technical capacity by population served to help identify specific training and technical assistance needs. The data in Figure 5 indicate that small systems tend to experience more difficulty in financial and managerial capability, and therefore KDHE training and technical assistance efforts should emphasize board/council education and financial planning assistance. The data in Figures 6 and 7 shows that medium sized systems generally have more challenges related to technical capability while Figure 8 indicates challenges at the largest systems vary. The Capacity Development Program will place special emphasis on asset management training and technical assistance for these medium to large systems. Asset management implementation provides a framework for water systems to develop a plan to address all TFM issues with the flexibility to place special emphasis on areas where capacity is lacking.

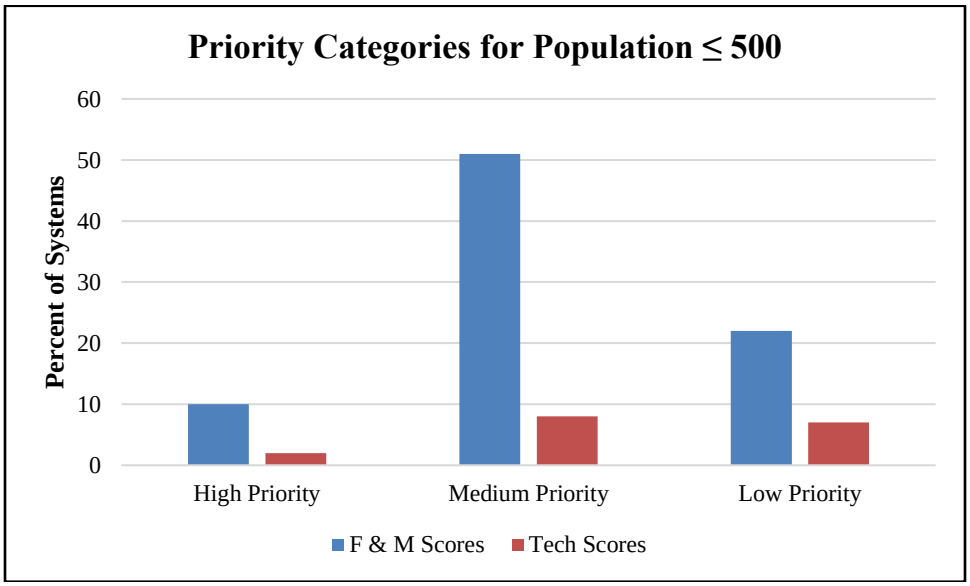


***Figure 5: Financial/Managerial Capacity Compared to Technical Capacity by Population (≤ 500).***

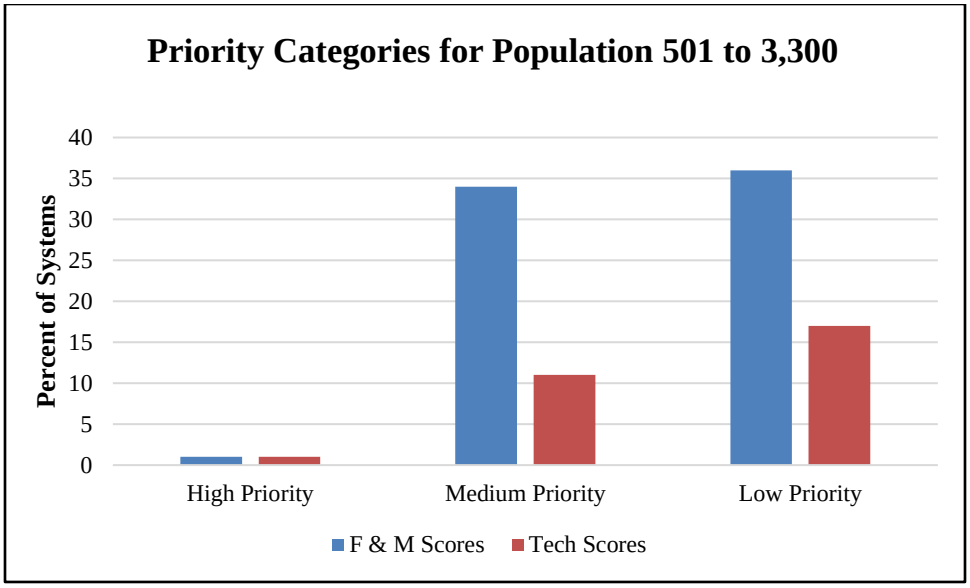


***Figure 6: Financial/Managerial Capacity Compared to Technical Capacity by Population (501 – 3,300).***

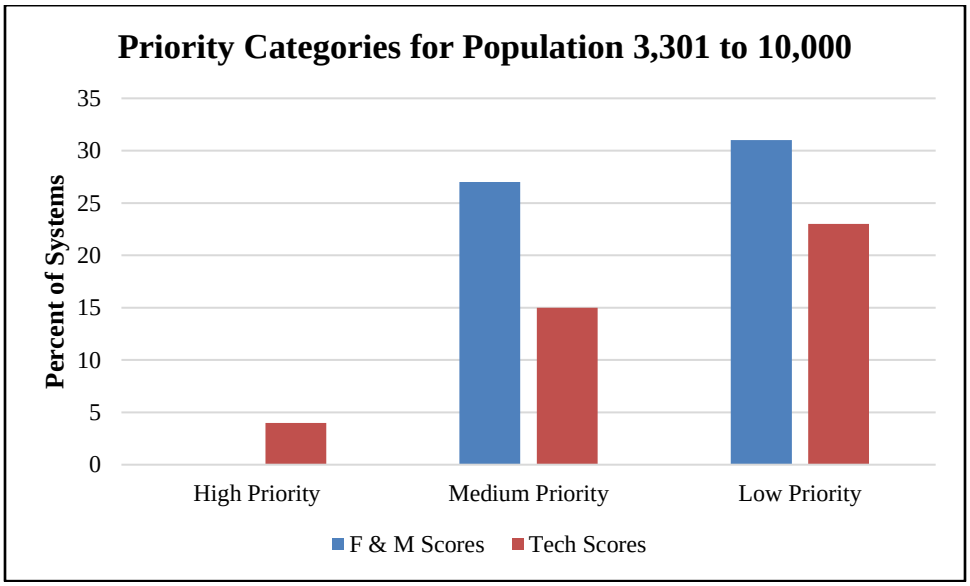


***Figure 7: Financial/Managerial Capacity Compared to Technical Capacity by Population (3,301 – 10,000).***

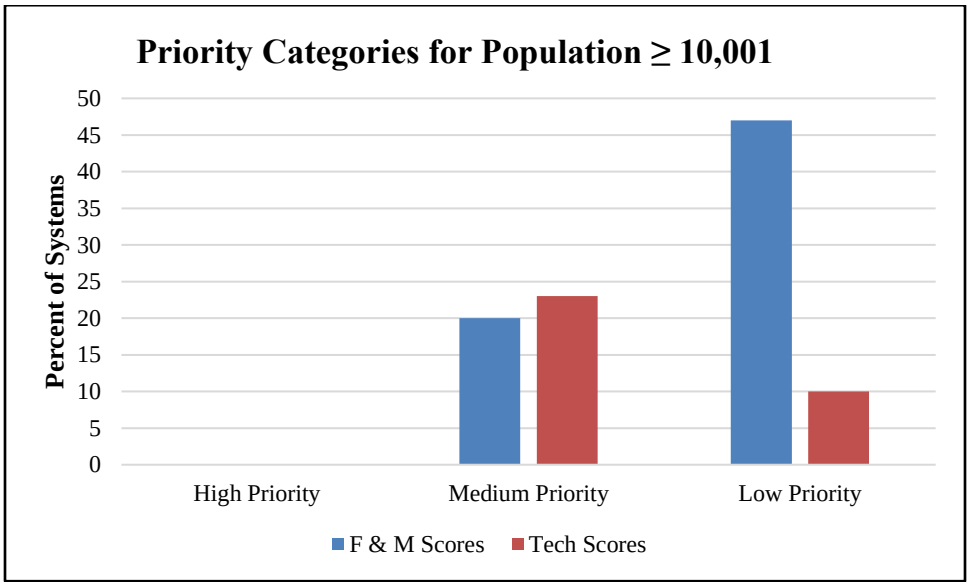


***Figure 8: Financial/Managerial Capacity Compared to Technical Capacity by Population (≥ 10,001).***

## OTHER KDHE PROGRAMS RELATED TO CAPACITY DEVELOPMENT

### Operator Certification Program

The Capacity Development Program collaborates with the Operator Certification Program to provide training and technical assistance for water operators. The two primary activities include the Small Water System Operator Training Program and technical assistance for Operators-In-Training.

The Capacity Development and Operator Certification programs worked with Kansas Municipal Utilities (KMU) and Kansas Rural Water Association (KRWA) to develop a training curriculum for small water system operators. Topics addressed in 2019 and 2020 include: Emergency Planning, Distribution System Rules and Surface Water Treatment. A minimum of one 2-day workshop is conducted in each KDHE region during each state fiscal year of five-year contracts with KMU and KRWA.

Technical assistance is provided to Operators-in-Training through a contract with the Kansas Municipal Utilities (KMU). On-site technical assistance is provided to water system operators that are not yet certified. The goal of this technical assistance is to provide hands-on training and oversight at the water system to insure that protection of public health is maintained. This assistance is provided for a maximum period of one year or until the operator-in-training passes the certification exam, whichever occurs first.

### Kansas Public Water Supply Loan Fund Program

The SDWA prohibits loans from the Kansas Public Water Supply Loan Fund to systems that are not in compliance with drinking water standards unless such loans would bring the system into compliance. The SDWA further prohibits loans to systems that do not demonstrate technical, financial and managerial capacity unless such

systems agree to make the necessary changes in operations including but not limited to management, accounting, rate structure or other procedures that would ensure TFM capacity over the long term. The Capacity Development Survey is used to assess the TFM capacity of loan applicants and works with them to help address deficiencies that may exist.

The Capacity Development Program also collaborates with the loan program to promote development of asset management plans. This collaboration resulted in development of a matrix to determine eligibility for additional points in the loan ranking process. Applicants may receive up to 10 points in the loan ranking system if they are developing and/or implementing an asset management plan.

**Area Wide Optimization Program (AWOP)**

The Area Wide Optimization Program (AWOP) is a voluntary program initiated to assist water systems toward optimizing their existing water treatment processes without major expenditures or infrastructure improvement. Optimization of public water supply systems is pursued in an effort to increase public health protection. AWOP was originally designed to address microbial contaminants only but has since grown to include many other areas of optimization, including but not limited to disinfection by-products and harmful algal blooms. Optimization is pursued through a variety of channels and mechanisms. The method of pursuit is dictated by the water system's areas of vulnerability.

KDHE initiated its AWOP in July 2017 and has since completed comprehensive performance evaluations (CPEs) aimed at optimizing water treatment plant turbidity performance at participating Kansas public water supply systems. In addition, AWOP team members participate in EPA Region 6/7 quarterly meetings and training sessions. These meetings and training sessions allow AWOP teams from participating states to share their knowledge and learn new methods of assisting water systems. The KDHE AWOP team does not currently have any scheduled CPEs for 2020-2021 due to uncertain conditions regarding Covid-19.

The AWOP team and other KDHE staff are collaborating with EPA Region 7, EPA Technical Support Center, and Process Applications, Inc. with a Disinfection By-Product Reduction Project. The project includes a variety of water systems that have been out of compliance for Disinfection By-Products. This includes surface water systems, surface water purchasing systems, and groundwater systems. The project consists of two training sessions led by Process Applications, Inc. and workshops designed to educate water systems and teach techniques to reduce Disinfection By-Products in their finished water.

## CONCLUSION

KDHE has strived to improve the Capacity Development Program since the beginning of the program twenty years ago. The Capacity Development Survey assists in evaluating the Program. Data gathered in the 2020 Survey indicate that the Capacity Development Program is succeeding. The number of systems in the High Priority category have decreased in all population groups. The combination of the new water system reviews, technical assistance, OIT training, operator certification training, public water supply loan fund, and AWOP team have all contributed to the success of the program. KDHE plans to continue improving each portion of the Capacity Development Program to improve the technical, financial, and managerial capacity of water systems in the state of Kansas to ensure public health protection.

# REPORT AVAILABILITY

The SDWA requires that the State make this report available to the public. The Department will post this report on KDHE Public Water Supply Capacity Development web page. The Capacity Development web page address is: http://www.kdheks.gov/pws/capdev/reports.html. Other Capacity Development Reports available by request or from the web page include:

- Report of Findings on Improving the Technical, Financial and Managerial Capacity of Kansas' Public Water Systems, July 2000

- State of Kansas Capacity Development Strategy for Existing Public Water Supply Systems, August 1, 2000